Chapter 10
Fixed-Wing Aircraft

This chapter provides the basic characteristics of selected fixed-wing aircraft readily available to the OPFOR. Both FM 100-60, *Armor- and Mechanized-Based Opposing Force: Organization Guide*, and FM 100-63, *Infantry-Based Opposing Force: Organization Guide*, use descriptors to indicate aircraft capabilities. In each manual, a substitution matrix enables the trainer to structure OPFOR air support requirements as required by capability rather that specific type.

Fixed-Wing Aircraft, generally covers the systems that will affect the planning and actions of the tactical-level ground maneuver force, and aircraft commonly employed by the OPFOR when in close proximity to enemy ground forces. Therefore, fighters and long-range bombers are not addressed unless they are routinely employed in training scenarios. This chapter classifies aircraft as strike, ground-attack, multi-role, and transport aircraft. Multi-role aircraft are able to support missions across each of the categories. This chapter encompasses many aircraft which may have a dual civil/military application. It does not include, however, aircraft designed and used primarily for civil aviation.

This sampling of systems was selected because of wide proliferation across numerous countries or because of already extensive use in training scenarios. Additional data sheets addressing other widely proliferated aircraft will be sent with further supplements to this guide.

Because of the increasingly large numbers of variants of each aircraft, only the most common variants produced in significant numbers were addressed. If older versions of airplanes have been upgraded in significant quantities to the standards of newer variants, the older versions were not addressed.

The munitions available to each aircraft are mentioned, but not all may be employed at the same time. The weapon systems inherent to the airframe are listed under armament. The most probable weapon loading options are also given, but assigned mission dictates actual weapon configuration. Therefore, any combination of the available munitions may be encountered.

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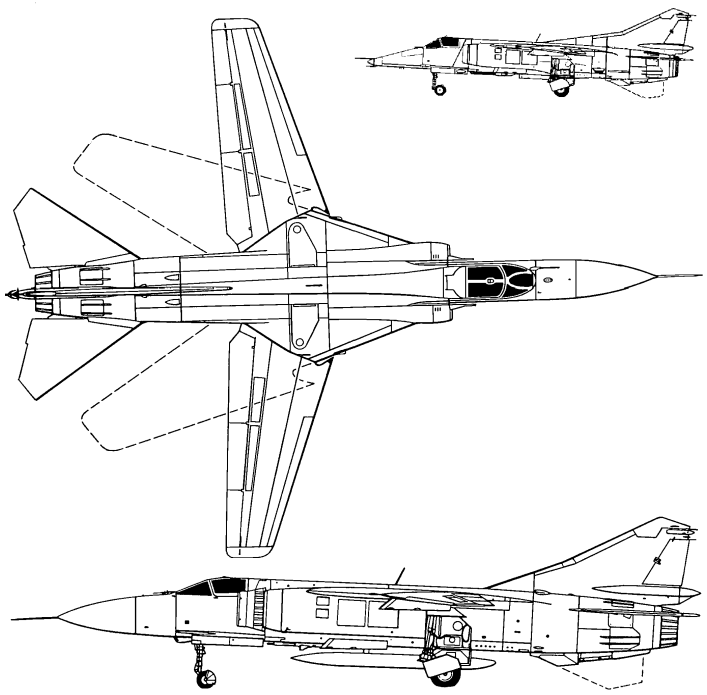
Russian Strike Aircraft MiG-23/FLOGGER



Weapon & Ammunition Types	Combat Load
23-mm Gsh-23L twin gun	**200**
or	
23-mm 6x barrel Gsh-6-23 gun	**260**
Other Loading Options	
240-mm S-24 rockets (1 each)	**4**
or	
80-mm S-8 rocket pods (20 ea)	
or	
57-mm S-5 rocket pods (32 ea)	
AS-7/KERRY ASM or AS-10/KAREN ASM or AS-12/KEGLER ASM or AS-14/KEDGE ASM	**4**
2x AA-7 APEX or AA-8/APHID AAM launchers	**2**
Gun Pods	
External fuel tanks (liters)	**800**
50-kg, 100-kg, 250-kg, or 500-kg unguided and guided bombs	

SYSTEM

Alternative Designations: MiG-27, Bahadur, or Valiant (Indian variant)
Date of Introduction: 1972
Proliferation: At least 23 countries

Description: Variants in ( )
Crew: 1 (pilot)
Appearance:
- Wings: High-mount, variable, tapered
- Engines: One in fuselage
- Fuselage: Long and tubular, with box-like intakes and large, swept belly-fin
- Tail: Swept-back, tapered with angular tip, swept, tapered flats mounted on fuselage

Engines: 1x 28,660-shp Soyuz/Kachaturov R-35-300 (MiG-23)/ or 1x 25,335-shp R-29B-300 (MiG-27) turbojet with afterburner
Weight (kg):
- Max Gross: 17,800 (MiG-23)/ 20,700 (MiG-27)
- Normal Takeoff: 14,840 (MiG-23)/ 18,900 (MiG-27)
- Empty: 10,200 (MiG-23)/11,908 (MiG-27)

Speed (km/h):
- Max (at altitude): Mach 2.35 (MiG-23)/ Mach 1.7 (MiG-27)
- Max (sea level): Mach 1.2
- Takeoff/Landing Speed: 315/270

Max "G" Force (g): +8.5 g (MiG-23)/ +7.0 (MiG-27)
Ceiling (m):
- Service (clean): 18,600
- With External Stores: INA

Vertical Climb Rate (m/s): 240
Fuel (liters):
- Internal: 4,250 (MiG-23)/ 5,400 (MiG-27)
- External: Up to 5x 800 liter tanks

Range (km):
- Max Load: 1,500
- With Aux Fuel: 2,500
- Combat Radius: 1,150

Takeoff Run/Landing Roll (m):
- Prepared Surface: 500/750 (MiG-23)/ 950/1,300 (MiG-27)

Dimensions (m):
- Length: 16.8 (MiG-23/ 17.1 (MiG-27)
- Wingspan: 14.0 extended, 7.8 swept
- Height: 4.8 (MiG-23)/ 5.0 (MiG-27)

Standard Payload (kg):
- External: 3,000 (MiG-23)/ 4,000 (MiG-27)
- Hardpoints: 5 (MiG-23)/7 (MiG-27)

Survivability/Countermeasures:
Pressurized cockpit with zero/130 ejection seat, infrared and radar jammer, radar warning receiver, decoy, chaff and flares.
Armored cockpit on MiG-27

ARMAMENT
The MiG-23 has a twin gun, and the MiG-27 has a 6x barrel Gatling gun.

23-mm twin gun, Gsh-23L:
Range (m): (practical) 2,500
Elevation/Traverse: None (rigidly mounted)
Ammo Type: HEFI
Rate of Fire (rpm): 9,000

23-mm 6x barrel gun, Gsh-6-23:
Range (m): (practical) 2,500
Elevation/Traverse: None (rigidly mounted)
Ammo Type: HEFI
Rate of Fire (rpm): 9,000

AVIONICS/SENSOR/OPTICS
The MiG-23 has an acquisition and tracking radar, IR sensor, and Doppler nav system.
The MiG-23B and MiG-27 series have a flattened nose section which houses a laser rangefinder/designator, TV sighting system, and a target tracker instead of the radar to attack ground targets.

Night/Weather Capabilities:
The MiG-23 is capable of attacking air targets day or night. The MiG-27 is capable of attacking ground targets in day, night, and poor weather conditions.

VARIANTS

MiG-23M/-23MF/-23MS/FLOGGER B: Standard interceptor, and first production variant. Export version is **FLOGGER E**.

MiG-23U/-23UM/-23UB/FLOGGER C: A tandem seat combat and trainer variant.

MiG-23B/-23BN/-23BN/-23BK/FLOGGER F/and FLOGGER H: Export fighter/bomber variant with Gsh-23 twin barrel gun, and tapered nose. Evolved into MiG-27.

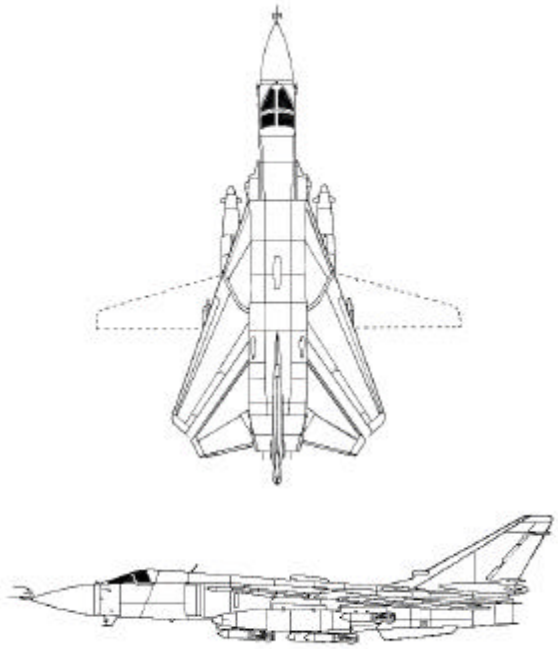
Russian Strike Aircraft MiG-23/FLOGGER continued

MiG-23ML/-23P/-23MLD/FLOGGER G and FLOGGER K: Primary production variant. Similar to FLOGGER B. **MiG-27K/FLOGGER D:** Ground-attack variant with internal 6x barrel 23-mm gun. Appearance differs by tapered nose. **MiG-27D/FLOGGER J:** Appearance differs by a long downward-sloping, pointed nose. Can be fitted with a three-camera recon pod. **MiG-27M/-27L:** Export versions built by Hindustan Aeronautics in India.		

NOTES

Inset line-drawing shows nose and intake differences of the MiG-27. This difference allows for a laser rangefinder/target designator. The sweep wing is capable of three angles: 16, 45, and 72 degrees. The ventral fin on the bottom rear of the fuselage folds for takeoff and landing. Up to five external fuel tanks can be carried on the MiG-23, and four on the MiG-27, but the MiG-27 can also be fitted for aerial refueling. Available munitions are shown above; not all may be employed at one time. Mission dictates weapons configuration. External stores are mounted on underwing and underbody hardpoints. Each wing has one point, two points are under the intakes along the fuselage, and the center fuselage attachment point gives five total stations. The MiG-27 then adds two more bomb racks under the wings for a total of seven stations.

Russian Strike Aircraft Su-24D/FENCER



Weapon & Ammunition Types	Combat Load
23-mm 6x barrel Gsh-6-23 gun	**250**
Other Loading Options	
TN1000 or TN11200 nuclear weapons	
100-kg FAB-100 bombs	**38**
TV or laser-guided bombs	**4**
AS-7/KERRY ASM or AS-10/KAREN ASM or AS-11/KILTER ASM or AS-12/KEGLER ASM or AS-13/KINGBOLT ASM or AS-14/KEDGE ASM or AS-17/KRYPTON ASM	
Gun pods	**3**
AA-8/APHID AAM	**2**
External fuel tanks (liters)	**2,000 or 3,000**

SYSTEM

Alternative Designations: None
Date of Introduction: 1975
Proliferation: At least 11 countries

Description:
Crew: 2 (pilot, weapon systems operator)
Appearance:
- Wings: High-mount, variable, tapered back
- Engines: Both along body, under wings

Engines: 2x 17,200-shp Lyluka AL-21F-3A turbojet (24,700-shp with afterburner)
Weight (kg):
- Maximum Gross: 39,700
- Normal Takeoff: 35,910
- Empty: 22,320

Speed (km/h):
- Maximum (at altitude): 2,320
- Maximum (sea level): 1,530
- Maximum Attack Speed: 1,200
- Cruise: INA
- Takeoff/Landing Speed: INA

Max "G" Force (g): +6.5 g
Ceiling (m):
- Service (clean): 17,500
- With External Stores: INA
- Vertical Climb Rate (m/s): 150

Fuel (liters):
- Internal: 11,760
- External: 8,000

Range (km):
- Maximum Load: 940
- With Aux Fuel: 1,230
- Combat Radius: 950

Takeoff Run/Landing Roll (m):
- Prepared Surface: 1,100-1,200/950

Dimensions (m):
- Length: 24.6
- Wingspan: 17.6 extended, 10.4 swept
- Height (gear extended): 6.2

Standard Payload (kg):
- External: 8,000
- Hardpoints: 9 underwing

Survivability/Countermeasures:
Pressurized cockpit with zero/zero ejection seats, infrared and radar jammer, radar and missile warning receivers, chaff and flares.

ARMAMENT
23-mm 6x barrel gun, Gsh-6-23:
Range (m): (practical) 2,500
Elevation/Traverse: None (rigidly mounted)
Ammo Type: HEFI
Rate of Fire (rpm): 9,000

AVIONICS/SENSOR/OPTICS
The Su-24 has integrated navigation and fire control radars, pulse-doppler terrain following radar coupled to autopilot, laser/TV targeting and weapon guidance system, and laser rangefinder/ designator.

Night/Weather Capabilities:
The Su-24 is capable of attacking ground and surface targets in day, night, and poor weather conditions.

VARIANTS

Su-24M/-24MK/FENCER D: Attack version, and export model.

Su-24MR/FENCER E: Maritime reconnaissance version with a side-looking radar, TV camera, infrared scanner, and conventional cameras, ECM suite, or ELINT pods. It has datalink to ground, and no gun.

Su-24MP/FENCER F: Another recon and electronic warfare variant.

NOTES
This aircraft was the first developed specifically as a bomber for the ground-attack role. It has a variable swept-wing, that can be set at 16, 45, or 69 degrees. Some aircraft are capable of aerial refueling, and all can carry up to three external fuel tanks for extended range. There is no internal weapons bay. Available munitions are shown above; not all may be employed at one time. Mission dictates weapons configuration. External stores are mounted on underwing hardpoints. Each wing has four points, and the center fuselage attachment point gives nine total stations.

Russian Ground-Attack Aircraft Su-17/FITTER

Weapon & Ammunition Types	Combat Load
2x 30-mm NR-30 guns	**160**
Other Loading Options	
325-mm S-25 rockets (1 each) or 80-mm S-8 rocket pods (20 each) or 57-mm S-5 rocket pods (32 each)	
AS-7/KERRY ASM or AS-9/KYLE ASM or AS-10/KAREN ASM or AS-12/KEGLER ASM or AS-14/KEDGE ASM	
AA-2 ATOLL AAM or AA-8/APHID AAM or AA-11/ARCHER AAM launchers	
23-mm SPPU-22 Gun Pods	
External fuel tanks (liters)	**800**
100-kg, 250-kg, and 500-kg unguided and guided bombs	

SYSTEM

Alternative Designations: Su-20, Su-22, Strizh or Martlet
Date of Introduction: 1970
Proliferation: At least 19 countries

Description: Variants in ( )
Crew: 1 (pilot)
Appearance:
- Wings: Low-mount, variable, swept and tapered with blunt tips
- Engines: One in fuselage, intake in nose
- Fuselage: Tubular with blunt nose
- Tail: Swept-back and tapered, flats mounted on fuselage and swept-back

Engines: 1x 28,660-shp Lyulka AL-21F-3 (Su-17/20)/ or 1x 25,335-shp Tumansky R-29BS-300 (Su-22) turbojet with afterburner
Weight (kg):
- Max Gross: 17,700 (M2)/19,500 (M4)
- Normal Takeoff: 14,000 (M2) /16,400 (M4)
- Empty: 10,000

Speed (km/h):
- Max (at altitude): Mach 2.1
- Max (sea level): Mach 1.1
- Takeoff/Landing Speed: 265
- Max "G" Force (g): +7.0

Ceiling (m):
- Service (clean): 18,000/15,200 (M4)
- With External Stores: INA

Vertical Climb Rate (m/s): 230

Fuel (liters):
- Internal: 4,550
- External: Up to 4x 800 liter tanks

Range (km):
- Max Load: 1,500
- With Aux Fuel: INA
- Combat Radius: 330 to 685

Takeoff Run/Landing Roll (m):
- Prepared Surface: 900/950

Dimensions (m):
- Length: 18.8
- Wingspan: 13.8 extended, 10.6 swept
- Height: 4.8

Standard Payload (kg):
- External: 4,000/4,250 (M4)
- Hardpoints: 8

Survivability/Countermeasures:
Radar warning receiver, decoys, chaff and flares.
Armored cockpit on M3 and M4

ARMAMENT
The Su-17 has a 30-mm machinegun with 80 rounds, mounted in each wing.

30-mm machinegun, NR-30:
Range (m): (practical) 2,500
Elevation/Traverse: None (rigidly mounted)
Ammo Type: HEFI, APT, CC
Rate of Fire (rpm): 850

AVIONICS/SENSOR/OPTICS
The early variants of the Su-17 feature relatively simple avionics and targeting packages.
Newer variants, and upgraded aircraft can have better avionics, flight controls, targeting and fire control systems, attack computers, liquid-crystal displays, HUD, pulse-Doppler radar, laser designators, GPS, and self-defense packages with FLIR or TV packages provided by several western firms, and are modified to fire western armaments.

Night/Weather Capabilities:
The earlier models of the Su-17 are primarily daytime aircraft only.
Some newer versions have upgraded night and weather capabilities based on upgraded avionics and sensor packages, and are day, night, and all weather capable.

VARIANTS
This aircraft was derived from the **Su-7 FITTER A** by incorporating variable wings.
Many variants are in use, however, the M3 and M4 are the most proliferated versions.
Domestic aircraft use the nomenclature **Su-17**, export versions use **Su-20** and **Su-22**.

Su-17/-17MK/-20/FITTER C: First production version. Export called **Su-20**.

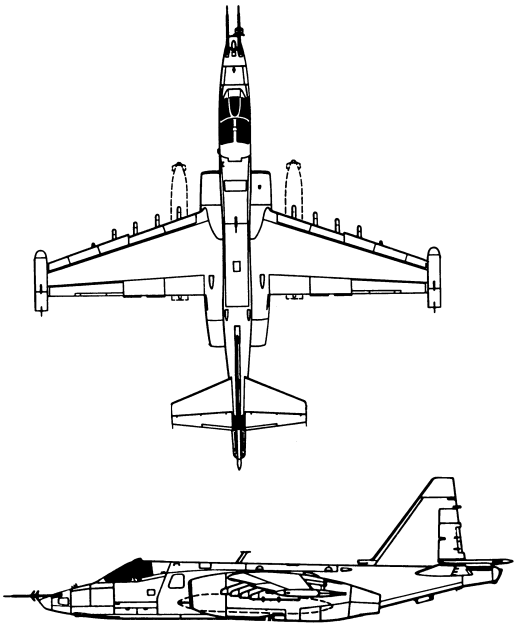
Su-17M/-17M2/-17M2D FITTER D: External Doppler-nav and internal laser rangefinder. Reconnaissance version called **Su-17R**.

Russian Ground-Attack Aircraft Su-17/FITTER continued

Su-17UM/-22U/FITTER E: Two-seat trainer with components of Su-17M. **Su-17/FITTER G:** Combat-ready two-seat trainer variant of FITTER H. Export version is **Su-22**, with Tumansky engine. **Su-17/-17M3/FITTER H:** Increased pilot visibility by drooping the aircraft nose, and incorporated an internal Doppler-nav and laser rangefinder. Reconnaissance version called **Su-17M3R**. **Su-17M4/-22M4/FITTER K:** Fighter-bomber. Essentially same as above, but with an additional air intake. Employs digital navigation and attack avionics. **Su-22/FITTER F:** Export version of FITTER D with Tumansky engine. **Su-22/-22M3/FITTER J:** Similar to FITTER H, but with increased internal fuel capacity.		

NOTES
The mid-wing pivot point of the sweep wings allows for positions of either 28, 45 or 62 degrees. Up to four external fuel tanks can be carried on wing pylons and under the fuselage. When under-fuselage tanks are carried, only the two inboard wing pylons may be used for ordnance. Available munitions are shown above; not all may be employed at one time. Mission dictates weapons configuration. External stores are mounted on underwing and underbody hardpoints. Each wing has two points, and the fuselage has four attachment points for a total of eight stations. Gun pods can be mounted to fire rearward.

Georgian/Russian Ground-Attack Aircraft Su-25/FROGFOOT



Weapon & Ammunition Types	Combat Load
30-mm twin barrel Gsh-30-2 gun	**250**
Other Loading Options	
AT-16 VIKhR ATGM (8 each)	**16**
23- or 30-mm GSH gun pods	**260 ea**
57-mm S-5 rocket pod (32 ea) or 80-mm S-8 rocket pod (20 ea)	**8** **8**
AS-7/KERRY ASM or AS-10/KAREN ASM or AS-14/KEDGE ASM or AS-11/KILTER ASM or AS-17/KRYPTON ASM	**8**
AA-8/APHID or AA-10/ALAMO	**2**
50-kg to 500-kg bombs	**4,000 kg**
External fuel tanks (liters)	**800/1,150**

SYSTEM

Alternative Designations: Gratch, Rook
Date of Introduction: 1980
Proliferation: At least 15 countries

Description:
Crew: 1 (pilot)
Appearance:
- Wings: High-mount, tapered back
- Engines: Both along body, under wings

Engines: 2x 4,000-shp Ryzhov (Soyuz/Tumansky) R195 Turbojet
Weight (kg):
- Maximum Gross: 17,600
- Normal Takeoff: 14,500
- Empty: 9,525

Speed (km/h):
- Maximum (at altitude): 880
- Maximum (sea level): 950
- Maximum Attack Speed: 690
- Cruise: 700
- Takeoff/Landing Speed: 220

Max "G" Force (g): +6.5 g
Ceiling (m):
- Service (clean): 7,000
- With External Stores: 5,000

Vertical Climb Rate (m/s): 72
Fuel (liters):
- Internal: 3,660
- External: 3,762

Range (km):
- Maximum Load: 500
- With Aux Fuel (2 tanks): 640
- Combat Radius: 556

Takeoff Run/LandingRoll (m):
- Prepared Surface: 550/600
- Unprepared Surface: 650/750
- Max Load: 1,200

Dimensions (m):
- Length: 15.5
- Wingspan: 14.5
- Height (gear extended): 4.8

Standard Payload (kg):
- External: 4,400 or 6,400 (Su-25T)
- Hardpoints: 10 underwing, w/500 kg ea

Survivability/Countermeasures:
Armored cockpit and engines, zero/100 km/hr ejection seat, self-sealing fuel tanks, and strengthened flight control linkages.
IFF, infrared jammer, radar warning receiver, chaff and flares.

ARMAMENT
30-mm 2x barrel gun, Gsh-30-2:
Range (m): (practical) 4,000
Elevation/Traverse: None (rigid mount)
Ammo Type: AP, HE, CC
Rate of Fire: Burst 50

AVIONICS/SENSOR/OPTICS
The targeting system incorporates a LLLTV, integrated navigation and aiming system, active bomb sight, and laser rangefinder/ designator. The aircraft uses an INS, GPS, and Doppler navigation.

Night/Weather Capabilities:
The Su-25 is fully capable of performing its direct air support mission in day, night, and poor weather conditions.

VARIANTS
Early Su-25s had 2x Soyuz/ Gavrilov R95SH engines. Most now upgraded.

Su-25A/-25K: Initial variant, and export.

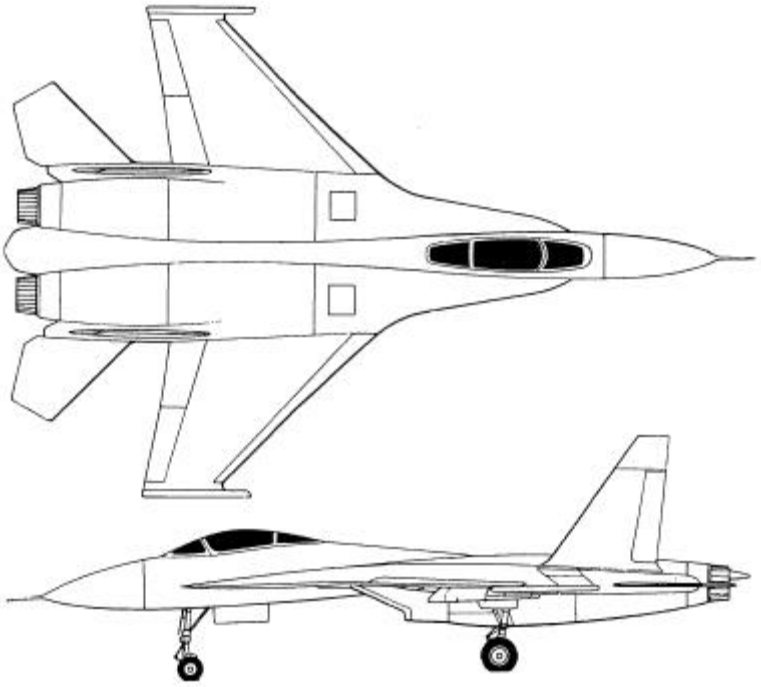
Su-25B/-25UB/-25UBK/-UBP: A two-seat combat aircraft, naval version, and trainer.

Su-25T/-25TM/-25TK: Developed from the Su-25UB. Height changed to 5.2 m to hold avionics and extra fuel. All with R195 engine for increased range, ceiling, and load. Other characteristics generally similar. Upgraded targeting, acquisition, and countermeasures.

Su-39: Export variant of Su-25T.

NOTES
Available munitions are shown above; not all may be employed at one time. Mission dictates weapons configuration. External stores are mounted on underwing hardpoints. Each wing has five points for a total of ten stations. A representative mix when targeting armor formations would be 16x AT-16 ATGMs, two rocket pods, two 23-mm gun pods, 250x 30-mm rounds, and two AA-8s. The titanium cockpit is invulnerable to 20-mm cannon fire, and 30-mm fire from oblique angles. The aircraft can carry a self-contained maintenance kit in 4 underwing pods. Also the engines can operate on any type of fuel likely to be found in the forward-operating areas, including diesel and gasoline. This allows the crew to operate from unprepared airfields for extended periods of time.

Russian Multi-role Aircraft Su-27/FLANKER



Weapon & Ammunition Types	Combat Load
30-mm Gsh-30-1 cannon	**150**
Other Loading Options	
420-mm S-25 rockets (1 each) or	**4**
122-mm S-13 rocket pods (5 each) or	**4**
80-mm S-8 rocket pods (20 each)	**4**
AS-10/KAREN ASM or	**8**
AS-7/KERRY ASM or AS-12/KEGLER ASM or AS-14/KEDGE ASM	**6**
AS-17/KRYPTON ASM or AS-18/KAZOO ASM	**2**
AA-10/ALAMO AAM or	**10**
AA-8/APHID AAM or AA-9/AMOS AAM or AA-11/ARCHER AAM or AA-12 ADDER AAMs	
Gun Pods	
250-kg, or 500-kg unguided and guided bombs	**4,000 kg**

SYSTEM

Alternative Designations: Su-35, J-11
Date of Introduction: 1986
Proliferation: At least 5 countries

Description: Variants in ( )
Crew: 1 (pilot)
Appearance:
- Wings: Mid-mount, swept, square tips
- Engines: Two in fuselage, with square underwing intakes
- Fuselage: Pointed nose, rectangular from intakes to tail
- Tail: Twin tapered, swept fins, with mid-mount, tapered, swept flats

Engines: 2x 27,557-shp Lyluka AL-31F turbojet with afterburner
Weight (kg):
- Max Gross: 28,300/33,000 (SM)
- Normal Takeoff: 23,000/23,700 (SM)
- Empty: 17,690

Speed (km/h):
- Max (at altitude): Mach 2.35
- Max (sea level): Mach 1.1
- Takeoff/Landing Speed: 250/231

Max "G" Force (g): Control limited to +9.0 g
Ceiling (m):
- Service (clean): 18,000
- With External Stores: INA

Vertical Climb Rate (m/s): 305
Fuel (liters):
- Internal: 6,600/11,775 (SM)
- External: no provision

Range (km):
- Max Load: 3,790
- With Aux Fuel: 4,390 (SM)
- Combat Radius: 1,500

Takeoff Run/Landing Roll (m):
- Prepared Surface: 500 to 650/600 to 720 (variant dependent)/ 1,200/1,200 (Su-35)

Dimensions (m):
- Length: 21.9
- Wingspan: 14.7
- Height: 5.5

Standard Payload (kg):
- External: 6,000
- Hardpoints: 10

Survivability/Countermeasures:
Zero/zero ejection seat, infrared and radar jammer, radar and missile warning receivers, chaff and flares.

ARMAMENT
The Su-27 has a 30-mm gun mounted in the right wing, and the primary missile for air defense missions is the AA-10 ALAMO.

30-mm gun, Gsh-30-1:
Range (m): (practical) 4,000
Elevation/Traverse: None (rigidly mounted)
Ammo Type: HEFI, APT, CC
Rate of Fire (rpm): 1,500

AVIONICS/SENSOR/OPTICS
The Su-27 employs a pulse-Doppler look-down/ shoot-down radar with a search range of 240 km and a track range of 185 km. It has multi-targeting capability, but cannot guide two missiles to separate targets
It also has an IR sensor, and laser designator, HUD, helmet-mounted target-designating sight, and computerized fire control system.

Night/Weather Capabilities:
The Su-27 is capable of attacking air targets under day, night, or all-weather conditions.
It has a beyond visual range look-down/ shoot-down capability.

VARIANTS

Su-27/-27SK/-27P/FLANKER B: Basic production version and export variant.

Su-27B/-27UB/-30/FLANKER C: Two-seat model used as command aircraft, combat trainer and interceptor. Also called **Su-30**.

Su-27K/FLANKER D: Naval variant, readily noticeable by canards forward of the wings.

Su-27IB/-34/FLANKER E: Naval variant, with side-by-side cockpit, folding wing and tail. Also called **Su-34**.

Su-27SM/-27SMK: Multi-role version. Has 12 hardpoints, greater internal fuel and payload capacity, and air refuel capability.

Su-27M/-35/FLANKER: Revised with more powerful 28,218-shp Lyluka AL-31SM engines with thrust-vectoring nozzles allowing a higher gross weight and greater range. Also fitted with better radar and targeting systems to allow multiple engagements. Dimensions increased slightly, readily noticeable by canards forward of the wings. Also called **Su-35**.

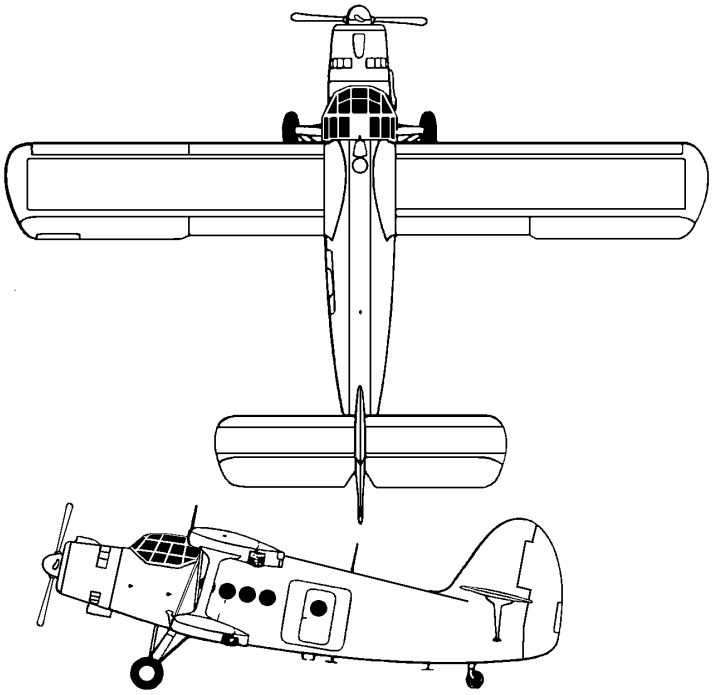
J-11: Single-seat Chinese built variant based on FLANKER B. **JJ-11:** Two-seat Chinese built variant based on FLANKER C.

Russian Multi-role Aircraft Su-27/FLANKER continued

NOTES

The Su-27 is primarily an all-weather interceptor/fighter aircraft used for air defense. It is also capable of performing ground attack missions. It is highly maneuverable because of a fly-by-wire control system which automatically restricts aircraft angles of attack and maximum G-loads during flight. External fuel tanks can be carried on some variants, and some are fitted for aerial refueling, but these are generally naval versions rather than air defense or strike versions. Available munitions are shown above; not all may be employed at one time. Mission dictates weapons configuration. External stores are mounted on underwing and underbody hardpoints. Each wing has two points, and an additional rail on the wingtip. Two points are under the intakes along the fuselage, and two are centrally located underneath the fuselage near the centerline and between the intakes for a total of ten stations.

Russian Transport Aircraft An-2/COLT



SYSTEM

Alternative Designations: INA
Date of Introduction: 1948
Proliferation: At least 32 countries

Description:
Crew: 2 (pilots)
Appearance:
- Wings: Biplane and rectangular-shaped with curved tips, one high-mount and one low mount (shorter), braced by struts
- Engines: One mounted in nose
- Fuselage: Short, thick, with blunt nose
- Tail: Tapered with round tip, rectangular, low-mounted flats

Engines: 1x 1,000-shp Shevetsov Ash-62 or PZL Kalisz Ash-621R 9-cylinder radial piston driving a four-bladed, variable-pitch propeller.
Weight (kg):
- Max Gross: 5,500
- Normal Takeoff: INA
- Empty: 3,450

Speed (km/h):
- Max: 258
- Min: 90
- Cruise: 185
- Takeoff/Landing Speed: 85

Max "G" Force (g): -1.0 to +3.7
Ceiling (m):
- Service (clean): 4,400

Vertical Climb Rate (m/s): 3.0

Fuel (liters):
- Internal: 1,200
- External: None

Range (km):
- Max Load: 900

Takeoff Run/Landing Roll (m):
- Prepared Surface: 150/170
- Unprepared Surface: 200/185
- Max Load: INA

Dimensions (m):
- Length: 12.7
- Wingspan: 18.2
- Height: 4.0

Cabin Dimensions (m):
- Floor Length: 4.1
- Width: 1.6
- Height: 1.8

Standard Payload (kg):
- Internal: 1,500
- Transports 12 troops or paratroops, or 6 litters.

Survivability/Countermeasures:
None

ARMAMENT
Some early prototypes experimented with single 12.7-mm or 23-mm machineguns, and unguided aerial rockets. None produced.

AVIONICS/SENSOR/OPTICS
Flight avionics only.

Night/Weather Capabilities:
The An-2 is capable of flight under day and instrument meteorological conditions.

VARIANTS

This aircraft was originally built in Russia. Now it is produced in China and Poland.

An-2D/-2TD: Specially modified for parachute training and special operations.

An-2P/-2T/-2TP: Passenger and general transport variants.

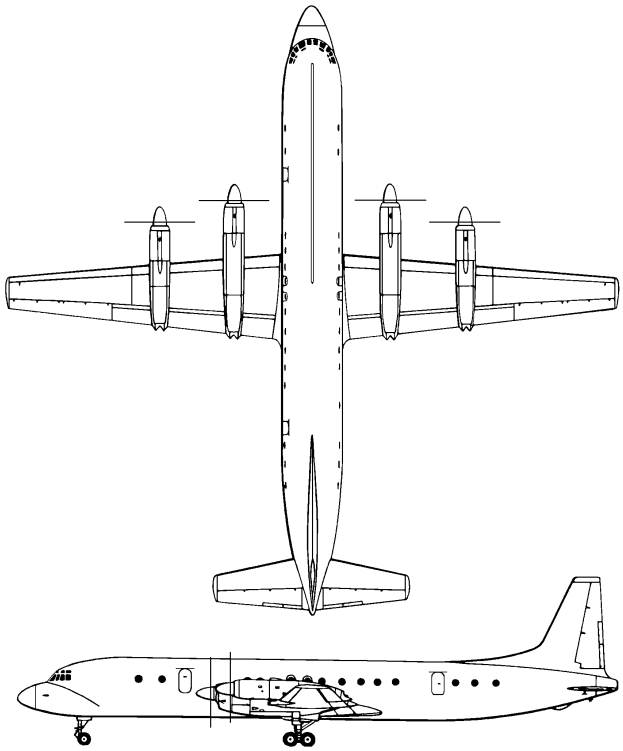
An-2V/-2M/-4: Seaplane variant with floats in place of main landing gear.

An-3: This variant employs an upgraded 1,450-shp Glushenkov TVD-20 turboprop engine, and a larger three-bladed propeller. This allows for an increased takeoff weight of 5,800 kg.

Y-5/C-5: Chinese-built version, and Chinese export nomenclature.

NOTES
The wings and elevators are fabric-covered, while the fuselage is metal. This aircraft can operate from unimproved airfields, and is noted for short takeoff and landing capabilities, and ruggedness. Its low acoustic signature and slower speeds allow for stealthy operation. Cabin contains tip-up seats which can be easily folded to allow space for cargo. Skis or pontoons can be employed on the main landing gear struts.

Russian Transport Aircraft IL-18/COOT



SYSTEM

Alternative Designations: Il-20, Il-22
Date of Introduction: 1959
Proliferation: At least 5 countries

Description:
Crew: 5 (2x pilots, 1x navigator, 1x radio operator, 1x flight engineer)
Appearance:
- Wings: Low-mounted and tapered with blunt tips
- Engines: Four mounted on wings and extending forward
- Fuselage: Round, cigar-shaped, tapered at rear with rounded nose
- Tail: Tapered with square tip, fuselage-mounted, tapered flats

Engines: 4x 4,250-shp Ivchenko AI-20M turboprop driving 4x four-bladed, reversible-pitch propellers.
Weight (kg):
- Max Gross: 64,000 (D)/61,200 (E)
- Empty: 35,000 (D)/34,610 (E)

Speed (km/h):
- Max: 675
- Min: INA
- Cruise: 625
- Takeoff/Landing Speed: INA

Max "G" Force (g): INA
Ceiling (m):
- Service (clean): 10,000
- Operating Altitude: 8,000-10,000

Vertical Climb Rate (m/s): INA

Fuel (liters):
- Internal: 30,000 (D)/23,700 (E)
- External: None

Range (km):
- Max Load: 4,000 (D)/3,200(E)
- Normal Load: 6,500 (D)/5,200 (E)

Takeoff Run/Landing Roll (m):
- Prepared Surface: 1,300 (D)/850
- Unprepared Surface: INA

Dimensions (m):
- Length: 35.9
- Wingspan: 37.4
- Height: 10.2

Cabin Dimensions (m):
- Floor Length: 24.0
- Width: 3.2
- Height: 2.0

Standard Payload (kg):
- Internal: 13,500
- Transports 122 troops or 20 ELINT operators.

Survivability/Countermeasures:
None

ARMAMENT
None

AVIONICS/SENSOR/OPTICS
Flight avionics only.

Night/Weather Capabilities:
The aircraft is capable of flight under day, and instrument meteorological conditions.

VARIANTS

This aircraft was originally designed as a civilian transport aircraft, but has been adapted for military uses.

Il-18D: Has a center fuel tank for longer flight duration and extended range.

Il-18E: Variant without center fuel tank.

Il-20/COOT A: Unarmed strategic electronic intelligence/ reconnaissance and surveillance aircraft. The airframe is essentially the same as the Il-18D, but a cylinder containing a possible side-looking airborne radar is mounted under the fuselage forward of the wing. Smaller containers on the forward sides of the fuselage house possible cameras and sensors. Many small antennas are located under the fuselage.

Il-22/COOT B: An airborne command post variant of the Il-18D airframe.